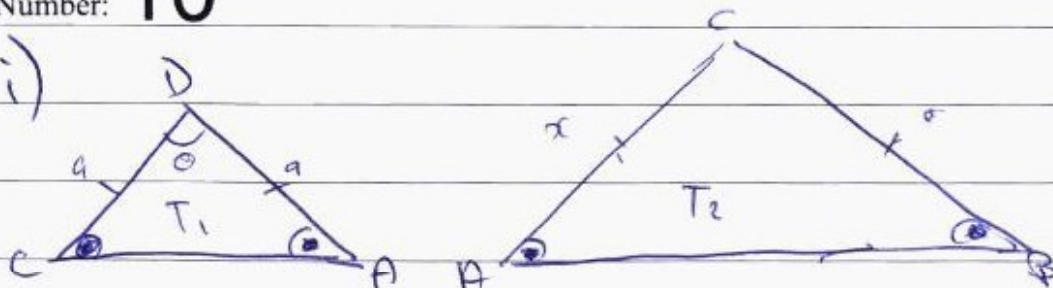


Start here for
Question Number: **10**

a) i)



$\angle DCA = \angle DAC$ in T_1 (isosceles triangle
has 2 equal sides
 \Rightarrow 2 equal angles)

$\angle CBA = \angle CAB$ in T_2 (isosceles as
proven above)

\therefore because $\angle CBA = \angle CAB$ also =
 $\angle DCA$

2 angles equal
 $\angle ACB = \theta$

proven triangles are isosceles \therefore if
2 angles in both triangles 3rd angle
must be equal in each triangle
all angles = 180..

$$\text{ii) } x^2 = a^2 + ay$$

Pythagoras

~~$x^2 =$~~

$$\text{iii) } y = a(1 - 2\cos\theta)$$

$$\text{iv) } y \leq 3a$$

$y \leq 3a$ because although y is larger than $2a$, the length of $3a$ would extend past the length of y .

b)
i)

$$V = \frac{\pi r^3}{3} (2 - 3\sin \theta + \sin^3 \theta)$$

$$V = \pi \int \pi r^2$$

↓

$$\left[\frac{\pi r^3}{3} \right]$$

$$ii \quad \frac{1}{2} \frac{\pi r^3}{2}$$

